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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,376	03/10/2004	Christoph Richter	2002P15599US	4466
7590 02/17/2009 SIEMENS CORPORATION INTELLECTUAL PROPERTY DEPT. 170 WOOD AVENUE SOUTH ISELIN, NJ 08830			EXAMINER EASTMAN, AARON ROBERT	
			ART UNIT	PAPER NUMBER
			3745	
			MAIL DATE	DELIVERY MODE
			02/17/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/797,376

**Applicant(s)**

RICHTER ET AL.

**Examiner**

Aaron R. Eastman

**Art Unit**

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 14 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims limit the blades to being formed from a titanium alloy yet the claims from which they depend (1, 6 and 15 respectively) already limit the blades to being made from solely titanium. It is this that makes claims 4, 14 and 17 indefinite.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5-13, 15, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5,474,421 (Rossmann hereinafter) in view of USP's 4,659,282 (Popp hereinafter) and 5,498,136 (Namura et al. hereinafter).

6. In re claim 1 Rossmann discloses a blade row of a turbo-machine, comprising:  
a blade (2, 3) having a root (2', 3'), a center region, a tip a leading edge and a trailing edge, the blades arranged circumferentially adjacent to each other to form a row;  
a shroud plate (8, 8') arranged at each blade tip, the shroud plate (8, 8') adapted to inhibit untwisting of the blades (2, 3), the shroud plates (8, 8') further including a saw-tooth-shaped contact region (18, 18') such that adjacent shroud plates (8, 8') are attached one inside the other thereby restricting blade movement about a center of axis of rotation.
7. Rossmann does not disclose a titanium blade or a support element arranged between adjacent blades of the blade row located approximately in the blade center region and coupling the adjacent blades.
8. Popp teaches titanium rotor blades (col. 1 lines 18-25 of Popp) and Namura et al. teach a support element (3) arranged between adjacent blades of a blade row located approximately in the blade center region and coupling the adjacent blades (Fig.'s 6, 8 and 9 of Namura et al.).
9. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Rossmann by forming the blades of titanium as taught in Popp for the purposes of low weight and high strength (col. 1 lines 40-43 of Popp) and by adding a support element arranged between adjacent blades of the blade row located approximately in the blade center region and coupling the adjacent blades as taught in Namura et al. for the purposes of heightening rigidity and vibration dampening functions (col. 1 lines 20-21).

10. In re claims 2, 3 and 5-13 the Rossmann modification in re claim 1 discloses all of the limitations.

11. In re claims 15-17 the Rossmann modification in re claim 1 discloses all of the structural limitations and inherently discloses the method steps recited. In re claims 15-17 the Rossmann modification in re claim 1 does not explicitly disclose that the assembly method of the blade row requires the method steps as claimed. However, it would have been obvious to one having ordinary skill in the art to assemble the blade row of the Rossmann modification in re claim 1 by "assembling a first rotating blade on a turbine rotor;  
assembling a second rotating blade on the turbine rotor so the first rotating blade and second rotating blade are adjacent;  
installing a support element between the first rotating blade and the second rotating blade, the support element located approximately in the blade center region;  
coupling the first rotating blade to the second rotating blade; and  
providing blade shrouds located on the tips of the blades, each blade shroud including a saw-tooth-shaped contact region such that adjacent blade shrouds are attached one inside the other thereby restricting blade movement about a center of axis of rotation wherein the first and second blades are formed from titanium" since it is one of a finite number of identifiable assembly methods which results in the structure of the Rossmann modification in re claim 1 as a predictable solution with a reasonable expectation of success.

12. In re claim 16 the Rossmann modification in re claim 1 discloses all of the limitations.

13. In re claim 18 the Rossmann modification in re claim 1 discloses all of the limitations.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP's 3,778,190 and 5,829,956 disclose a support element arranged between adjacent blades of a blade row located approximately in the blade center region and coupling the adjacent blades. USPAP 2004/0018091 discloses titanium blades.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron R. Eastman whose telephone number is (571)270-3132. The examiner can normally be reached on Mon-Thu 9:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron R. Eastman/  
Examiner, Art Unit 3745

/Edward K. Look/  
Supervisory Patent Examiner, Art Unit 3745